ENERGY POLICY UPDATE

August 11, 2014

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UPCOMING WEBINARS

- ENERGY STAR Webinars
- U.S. Dept. of Energy Tribal Renewable Energy Webinar Series for 2014

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ARIZONA-RELATED

In-Depth Study Examines Air Quality in Metro Phoenix

[ASU News, Aug. 5] Air can be considered a great equalizer – we all have to breathe it. Arizona State University faculty member Tom Cahill is interested in adding to our knowledge base of air quality in metropolitan Phoenix, and he uses monitoring equipment that he has set up on ASU's West campus in pursuit of that goal. Cahill, associate professor in ASU's New College of Interdisciplinary Arts and Sciences, is the author of an article in the journal Atmospheric Environment that digs deeper into the composition of particulates in the Valley's air than typical air-quality monitoring provides. The study also follows month-to-month variations in air quality over the course of a full year, while most studies are only conducted over short time periods. Unlike many air monitoring sites that simply report overall levels of particulate matter in the air, along with compounds like ozone and carbon dioxide, Cahill's study gathered data on the range of sizes of airborne particles.

Interior Secretary Visits Arizona Urban Park

[Associated Press, Aug. 9] PHOENIX — Interior Secretary Sally Jewell praised an Arizona park on Saturday as the ideal example of the benefits that can come from a longtime federal program that focuses on creating urban parks across the country. "It's evident it gets a lot of use from families and hikers," Jewell told The Associated Press. "You certainly don't feel like you're in the middle of a big city. You feel like you're out in the wild, which is really nice." Jewell spent the morning visiting South Mountain Park in Phoenix and was joined by U.S. Rep. Ed Pastor and Mayor Greg Stanton. Phoenix was the last stop in a series of visits Jewell has been making around the country this week in support of the federal Land and Water Conservation Fund. As a city, Phoenix has received more than $10 million from the fund. Arizona has gotten $210 million over the years for parks and open spaces, Jewell said. She has been pushing for Congress to renew the conservation program and give more funding from revenue generated by oil and gas. "We're starving a lot of our public lands. Yet, people care a lot about them," Jewell said. According to officials, South Mountain Park is the largest municipal park in the U.S. and considered a "model urban park." The park received one of the fund's earliest grants of $26,000 back in 1966, Jewell said.

New ASU Center To Advance Research in Bioenergy, Biomedicine

[ASU News, Aug. 1] Petra Fromme, an Arizona State University professor of chemistry and biochemistry, has been appointed by President Michael M. Crow to lead a new Biodesign Institute initiative that will have a significant impact on the fields of bioenergy, enzyme catalysis and drug

discovery, called the Center for Applied Structural Discovery. “Petra Fromme’s research promises to crack nature’s code and replicate fundamental biological processes, such as photosynthesis, for profound societal benefits,” said Crow. “The establishment of this center reflects ASU’s evolution as a leading research university, and it underscores our commitment to innovation in the pursuit of solutions to some of the world’s most pressing problems." **Spurring bioenergy and biomedical advances** - Fromme has been a critical contributor to an ASU group that, for the past generation, has been one of the world’s leading photosynthesis groups in the world. And if scientists can successfully mimic photosynthesis – the way plants use sunlight energy to break apart water molecules into hydrogen and oxygen – they could help to usher in the hydrogen economy. But to date, no one has been able to unlock plants’ secrets to produce a clean, cheap and scalable renewable energy alternative.

ALTERNATIVE ENERGY & EFFICIENCY

Administration Releases Biogas Roadmap

[EESI.org website, Aug. 8] On August 1, the U.S. Department of Agriculture (USDA), U.S. Environmental Protection Agency (EPA), and Department of Energy (DOE) released a Biogas Roadmap, outlining voluntary measures that farmers and dairy producers can implement to increase the use of methane digesters. Financial support is provided through USDA’s Natural Resources Conservation Service’s (NRCS) Environmental Quality Incentive Program (EQUIP), as well as several programs from the Farm Bill’s Energy Title: the Rural Energy for America Program (REAP), the Bioenergy Program for Advanced Biofuels, and the Biorefinery Assistance Program. In March, the Obama administration unveiled its Strategy to Reduce Methane Emissions, as prescribed by the President’s Climate Action Plan (CAP) released last June. While shorter-lived in the atmosphere, methane is a potent greenhouse gas (GHG), 84 times more effective at trapping heat in the atmosphere than carbon dioxide in a 20-year period. Most of the attention has been focused on the emissions of the booming domestic oil and natural gas industry, but agriculture is the largest source of domestic methane emissions, at 23 percent. Currently, methane accounts for almost 9 percent of domestic GHG emissions, down from 11 percent of total GHG emissions in 1990, despite an uptick in methane-producing activities. However, methane emissions are expected to rise by 2030, unless further action is taken.

GM Plans To Launch More Diesel Vehicles in U.S.

[Automotive News, Aug. 5] Traverse City, MI – General Motors will launch more cars and light trucks with diesel engines in the United States in the coming years. Speaking today at the 2014 Management Briefing Seminars, Steve Kiefer, GM’s vice president of global powertrain, said diesels in cars and light trucks could grow to 10 percent of the market in the United States by 2020. GM’s lone diesel car in North America, the Chevrolet Cruze, carries an EPA highway rating of 46 mpg and has met GM’s sales expectations. The only other diesel GM offers in the United States is the Duramax V-8 engine, optional in heavy-duty Chevrolet and GMC pickups. The next diesel engine coming is slated for the 2016 model year, a 2.8-liter four-cylinder that will be available in the Chevrolet Colorado and GMC Canyon mid-sized pickups. But more are coming, Kiefer said. “The Chevrolet Cruze diesel will be the first of many diesel-powered passenger cars General Motors will offer in the United States,” Kiefer said.

Mexico 2014 Renewable Investment May Exceed $2.4 Billion

[Bloomberg, Aug. 11] Renewable-energy investment in Mexico is on pace this year to exceed the nation’s 2010 record of $2.4 billion, according to Bloomberg New Energy Finance. Investment in the first half of 2014 was about $1.3 billion, compared with $1.6 billion for all of last year, the London-based research firm said today in an e-mailed statement. Spending on wind and solar projects is expected to see a “significant” increase over the next two years. Mexico and the nations of Central America are estimated to install about 1 gigawatt of wind capacity this year, topping a record 757 megawatts in 2012. That figure may leap to 1.3 gigawatts in both 2015 and in 2016. Solar installations will be about 193 megawatts this year, and are expected to increase to 355 megawatts next year and 456 megawatts in 2016.

New Studies Aid in Optimizing Water Use in Geothermal Applications

[Energy.gov, July 31] Three key reports from the Energy Department address water impacts in geothermal energy production. Two recently issued studies, produced by Argonne National Laboratory for the Department's Geothermal Technologies Office (GTO), highlight methods for economizing water use in geothermal applications. These reports complement a Department-wide report released in June that assesses water usage in multiple energy applications, including geothermal.

Stacking Cells Could Make Solar As Cheap As Natural Gas
[MIT Tech Review, Aug. 6] A novel manufacturing method could make it practical to stack solar cells and convert more of the energy in sunlight into electricity. When experts talk about future solar cells, they usually bring up exotic materials and physical phenomena. In the short term, however, a much simpler approach—stacking different semiconducting materials that collect different frequencies of light—could provide nearly as much of an increase in efficiency as any radical new design. And a new manufacturing technique could soon make this approach practical. The startup Semprius, based in Durham, North Carolina, says it can produce very efficient stacked solar cells quickly and cheaply, opening the door to efficiencies as high as 50 percent. (Conventional solar cells convert less than 25 percent of the energy in sunlight into electricity.) Semprius has come up with three key innovations: a cheap, fast way to stack cells, a proprietary way to electrically connect cells, and a new kind of glue for holding the cells together. In its designs, Semprius uses tiny individual solar cells, each just a millimeter across. That reduces costs for cooling and also helps improve efficiency. The conventional way to stack semiconductors is to grow layers on top of each other. But not all semiconductors can be combined this way, because their crystalline structure doesn't allow it (see "Adaptive Material Could Cut the Cost of Solar in Half"). Semprius grows semiconductor materials in the conventional way but also stacks several different combinations, resulting in a solar panel that can capture more energy from sunlight. Semprius has demonstrated cells made of three semiconductor materials stacked on top of a fourth solar cell that would not have been compatible otherwise. It has made two versions of the device this year, one with an efficiency of 43.9 percent and the other, using slightly different materials, with an efficiency of 44.1 percent.

Using Magnets To Keep Cool: Breakthrough Technology Boosts Energy Efficiency of Refrigerators
[Energy.gov, July 29] Household refrigerators are essential for keeping food cool and safe. However, these appliances use a lot of energy, and generate emissions that negatively impact the environment. New technology funded by the Energy Department has led to a major breakthrough in refrigeration systems that could yield big energy savings for consumers and greatly reduce carbon pollution. With help from about $2 million in Energy Department funding through the Recovery Act, General Electric (GE) partnered with Oak Ridge National Laboratory researchers to develop magnetic cooling technology -- an innovative approach that uses a 50-stage system combined with a new type of iron-manganese alloy to remove heat and reduce temperatures by up to 80ºF. By applying the concept of the magnetocaloric effect (lowering or raising the temperature of material by changing the magnetic field), GE has identified a method for replacing a refrigerator's conventional vapor compression technology while still providing an effective means for cooling food and beverages. This system uses a water-based fluid, a more environmentally friendly and cost-effective cooling system, in contrast to traditional refrigerants. This technology also introduces magnets instead of a traditional compressor. The magnets create a magnetic field that heats up the particles in the regenerator (or heat exchanger). After heat is released -- the byproduct of work being done by the refrigerator-- the magnetic field is removed, causing the refrigerator to cool.

ENERGY/GENERAL

China Pushes To Build Its Own Ships To Deliver Gas
[Reuters, Aug. 5] SINGAPORE — Chinese shipyards are seeking to take about $10 billion in orders for new liquefied natural gas tankers over the rest of the decade, part of a plan to restructure the country's ailing shipbuilding sector and secure China's energy supply chain. China's push to build its own natural gas delivery vessels will increase its capability in high-tech shipbuilding and challenge South Korean and Japanese shipyards, which have been the main suppliers of large gas tankers for 30 years. As many as 50 tankers, or more than 20 percent of the 225 liquefied natural gas vessels expected to be added worldwide by the end of 2020, are expected to be built in China to deliver gas to its ports, according to estimates from the American Bureau of Shipping, a ship safety society. China's reliance on vessels built at home for gas deliveries — which China needs to serve new import terminals — would give it greater control over its supply chain and a bigger share of the high-value end of shipbuilding.

Deep Water Fracking Next Frontier for Offshore Drilling
[Bloomberg, Aug. 6] An offshore oil platform and wells are silhouetted by the setting sun in the Gulf of Mexico. Energy companies are taking their controversial fracking operations from the land to the sea -- to deep waters off the U.S., South American and African coasts. Cracking rocks underground to allow oil and gas to flow more freely into wells has grown into one of the most lucrative industry practices of the past century. The technique is also widely condemned as a source of groundwater contamination. The question now is how will that debate play out as the

equipment moves out into the deep blue. For now, caution from all sides is the operative word. “It’s the most challenging, harshest environment that we’ll be working in,” said Ron Dusterhoft, an engineer at Halliburton Co., the world’s largest fracker. “You just can’t afford hiccups.” Offshore fracking is a part of a broader industrywide strategy to make billion-dollar deep-sea developments pay off. The practice has been around for two decades yet only in the past few years have advances in technology and vast offshore discoveries combined to make large scale fracking feasible. While fracking is also moving off the coasts of Brazil and Africa, the big play is in the Gulf of Mexico, where wells more than 100 miles from the coastline must traverse water depths of a mile or more and can cost almost $100 million to drill.

New Transmission and Distribution Infrastructure Needs $2 Trillion by 2024

[Fierce Energy, Aug. 6] Over the next decade, an investment of between $140.2 billion and $170.5 billion per year on traditional transmission and distribution (T&D) infrastructure will be needed worldwide to keep pace with growth in electricity demand, while an additional $8 billion to $27.3 billion will be invested annually in smart grid infrastructure to improve the efficiency and reliability of T&D grids, according to Northeast Group, LLC. "The significant need for new power generation capacity makes the headlines on a daily basis. But what is seldom discussed is the equally important need for new T&D infrastructure, which needs an enormous $1.9 trillion in cumulative investment by 2024," said Ben Gardner, president of Northeast Group. "This includes substations, power lines and associated equipment and new technology. T&D investment typically represents approximately 40 percent of total power infrastructure spending."

INDUSTRIES AND TECHNOLOGIES

Bigger Fish Eye Mid-Tier Smart Energy Storage Market

[TriplePundit.com, Aug. 5] Bigger fish are taking greater interest in the mid-tier energy storage market, looking to capitalize on technological advances and the introduction of energy storage mandates and development programs by governments in California, Hawaii, New York and Puerto Rico. Following the path of entrepreneurial startups such as Santa Clara, California’s Green Charge Networks, Sharp Electronics on July 29 announced its SmartStorage solution is now available throughout the Golden State. Akin to Green Charge’s GreenStation, Sharp’s SmartStorage system employs the latest in lithium-ion (Li-ion) battery storage technology and intelligent demand response (DR) software algorithms to enable commercial and industrial utility customers to better manage electricity consumption — specifically demand charges. In contrast to standard residential rates, which have been falling, utility demand charges have been rising at some 10 percent per year.

Enel Green Power Signs First Cooperative Research and Development Agreement in the US for Stillwater Hybrid Plant

The renewable specialist starts its collaboration with two US National Laboratories NREL and INL to use empirical data from the Stillwater Geothermal/Solar Project.

The parties will jointly explore and quantify the benefits of integrating renewable energy technologies at the same site.

The agreement paves the way for further innovation into next-generation geothermal facilities.

[International Resource Forum, Aug. 4] Rome – Boston — Enel Green Power (EGP), the National Renewable Energy Laboratory (NREL) and Idaho National Laboratory (INL), under the oversight of the U.S. Department of Energy Geothermal Technologies Office (GTO) have signed a Cooperative Research and Development Agreement (CRADA) with the goal of exploring the potential of EGP’s innovative Stillwater hybrid power plant. The 2 MW Stillwater Concentrated Solar Power (CSP) Project is currently under construction in Fallon, Nevada and, upon completion, it will operate alongside the existing 33 MW Stillwater geothermal power plant, which is already paired with a 26 MW photovoltaic facility. This is the first hybrid plant in the world able to bring together at the same site the continuous generating capacity of binary-cycle, medium-enthalpy geothermal power with solar photovoltaic and solar thermodynamic. Under the agreement, the integration of geothermal and CSP to generate power will be studied over the coming year. EGP, NREL, INL and the GTO will work together to model the combination of geothermal and CSP systems, validating simulated results with real-world data from the Stillwater facility. The fruits of this work will be used to explore and quantify the potential benefits of different operating strategies and integration schemes, with the goal of opening doors for the development of future hybrid renewable energy facilities.

Fuel Cells Are Beginning To Gain Global Traction

Demand for clean technology is on the rise as the world begins to embrace renewable energy

[Hydrogen Fuel News, Aug. 11] Grand View Research has published a new report concerning

global fuel cell capacity. Renewable energy is becoming a major priority for many countries around the world, and some of these countries are beginning to look to fuel cells to meet their clean energy needs. While these energy systems have yet to find acceptance as primary providers of electrical power for governments, businesses are quite interested in using fuel cells of various kinds to tap into renewable power. Global energy shift puts more emphasis on fuel cells - The report notes that the global fuel cell market is beginning to flourish thanks to favorable regulatory policies and a global energy shift. As more countries begin to support renewable energy, they are investing more heavily in clean technology. This is encouraging certain industries to embrace new energy systems, a trend that is evidenced in the auto industry's aggressive adoption of hydrogen fuel cells. In the coming years, various types of fuel cells are likely to find more adoption as primary energy systems.

IRS Clarifies US Energy Production Tax Credit Compliance

[Energy Industry Today, Aug. 11] The United States Treasury Department and the Internal Revenue Service (IRS) have issued a notice clarifying what it means to "begin construction" on a project for the purposes of the renewable electricity production tax credit (PTC) or the energy investment tax credit (ITC). Under the American Taxpayer Relief Act of 2012, taxpayers can claim the PTC or the ITC for certain renewable energy facilities if construction began before January 1, 2014. " With today's guidance, businesses that are investing in renewable energy projects have the clarity they need to qualify for important tax credits designed to help spur innovation in this sector," said Emily McMahon, Deputy Assistant Secretary for Tax Policy. "With the support of these credits, growth in the production of renewable energy will help support a clean energy economy, reduce our reliance on oil and cut greenhouse gas pollution." Previous guidance provided two methods to determine when construction of a facility begins: the physical work test or the safe harbor. The new guidance provides further clarification in response to stakeholder feedback. The notice confirms that the physical work test relates to the nature of the work, not the amount or cost. Work of a significant nature includes, for example, any of the following activities: beginning of the excavation for the foundation, the setting of anchor bolts into the ground, or the pouring of the concrete pads of the foundation. It also clarifies that a fully or partially developed facility may be transferred without losing its qualification under the physical work test or the safe harbor for purposes of the PTC or the ITC. The only exception to this provision is transfers consisting solely of tangible personal property between unrelated parties. - See more at: http://www.tax-news.com/news/IRS_Clarifies_US_Energy_Production_Tax_Credit_Compliance____65496.html#sthash.qmsDGlLI.dpuf

New Electric Utility Business Model a Bold Effort in NY

[Energy Manager Today, Aug. 6] The US electric grid has not been updated since World War II, when telephones, dishwashers, and air conditioning were the cutting-edge technology innovations of the century. Today, this same grid is struggling to cope with the technological advances of the last decade, a reality that hit home for New Yorkers in the wake of Superstorm Sandy when millions of people lost power for days and even weeks. But New York is taking steps to change this, first by initiating a proceeding in April to overhaul the state's utility business model, and now by opening the proceeding to comments. Humble beginnings - New York played a leading role in establishing today's utility business model. Thomas Edison developed the first power plant on Pearl Street in Manhattan in 1882, serving 85 lighting customers. The business model of Edison and his protege, Samuel Insull, was simple – keep adding more customers and keep building larger power plants. This was a win-win model for Edison's customers and for his utility companies. Customers won because the ever-larger power plants were more efficient, meaning Edison could sell electricity at a lower cost per unit every time he built a new plant. As the price per kilowatt of electricity kept declining, customers used more electricity. To encourage growth in this new electricity infrastructure, New York, like all of the other states, protected the utilities' investment by granting them an exclusive right to serve customers. In exchange for being permitted to operate as a monopoly, New York set the price the utility could charge for electricity. The prices were structured to reward the utility for successfully building a bigger and more robust system. Needless to say, Edison's business model proved wildly successful.

SunPower Targets Hybrid Buyers with Pure Solar Supply

[Bloomberberg, Aug. 5] Buyers of Volkswagen or Audi hybrids will find themselves getting yet another sales pitch as they leave a U.S. dealership next year -- to buy a home power network that allows them to charge their new cars using only solar power. SunPower Corp. (SPWR), the second-largest U.S. solar manufacturer, has joined German automaker Volkswagen AG (VOW) to market the panel-and-battery systems in a bid to get environmentally conscious customers interested in residential power systems. It's part of the San Jose, California-based company's vision to reach new customers through consumer electronics, hybrid cars and other devices that use electricity, Chief Executive Officer Tom Werner said in a phone interview yesterday. With battery systems to store power generated from rooftop panels to release on demand, SunPower

customers can make their hybrid car truly solar-powered, reducing the amount of electricity they need to buy from the grid, he said. “This is another brick in the wall of becoming an energy services company,” Werner said. “You’ve got customers who appreciate efficiency, great engineering. It doesn’t have to be a car company.”

The Challenge for Electric-Car Sales Is Car Dealers, Again

[Green Car Reports, Aug. 6] Car dealers maximize their profits by selling the highest number of cars at the highest possible prices in the least possible time. Plug-in electric cars are unfamiliar to most buyers, and require more explanation--sometimes a great deal more--along with specific types of support during and after the sale. That makes them less appealing for dealers to sell, especially the higher-volume dealers. Now a third party, specifically the Natural Resource Defense Council's Luke Tonachel, has highlighted the challenge to electric-car adoption posed by the dealership bottleneck. In a recent article in trade journal *Ward's Automotive*, he highlighted the dissatisfaction rate with the dealership process among consumers seeking to buy an electric car, which was a remarkably high 83 percent. For buyers overall, that rate stood at just 25 percent. The data he cited came from ongoing research at the University of California--Davis, which has long studied adoption of plug-in vehicles, including the motivations, practical challenges, and the step-by-step process. Tonachel recounted instances where salespeople actively steered informed shoppers away from the plug-in vehicle they had specified they wanted to buy. “Sales people wanted to sell something else," Tonachel explained, "and would say, ‘Maybe you should look over here.’" Many dealerships that had been certified to sell and service their brand's plug-in vehicles either didn't have them on the floor, didn't have test cars available, or only grudgingly agreed to provide test drives in the electric vehicle. Similar results have emerged from secret shoppers sent on behalf of *Consumer Reports* to ask about and shop for electric vehicles at dealerships.

LEGISLATION AND REGULATION

DOE Unveils Initiative To Curb Methane Emissions from US Gas Systems

[Oil & Gas Journal, July 30] Washington, DC – US Department of Energy announced an initiative to reduce methane emissions from natural gas systems nationwide following a series of roundtables with stakeholders. The measures are part of the Obama administration’s larger methane emissions reduction strategy to fight causes of global climate change, DOE said. “By expanding our discussions through these methane roundtables, we have heard from several different groups about the benefits to finding workable solutions to the problem of methane leakage,” US Sec. of Energy Ernest G. Moniz said on July 29. “These benefits include job creation through pipeline and other equipment replacement, cost recovery for infrastructure investments that increase safety and save energy, and opportunities for addressing climate change by reducing greenhouse gas emissions,” he said. DOE’s Initiative to Help Modernize Natural Gas Transmission and Distribution Infrastructure includes efficiency standards for gas compressors, research and development with the gas industry to improve systems’ efficiency and reduce leaks, a recommendation that the Federal Energy Regulatory Commission look at cost recovery mechanisms for gas transmission infrastructure, and a partnership with the National Association of Regulatory Commissioners to accelerate distribution infrastructure investments.

Mexican Lawmakers Approve Energy Reform Provisions

[The Hill, July 6] Mexico’s Senate has given its final approval to legislation that seeks to reform the country’s oil sector by attracting private investment. The Tuesday vote cleared the backbone of the plan to implement a larger reform package approved in December, Reuters reported. The law ends a 75-year-old oil monopoly held by state-owned oil company Pemex, whose output has fallen in recent years.

Over 3 GW of US Utility Scale Solar-PV Projects At Risk from US Anti-Dumping Case, According to NPD Solarbuzz

PV project pipeline approaching 50 GW in the United States, but large-scale developments are at risk from proposed trade rulings

[Solarbuzz.com, Aug. 4] Santa Clara, CA – More than 3 gigawatts (GW) of the projects currently in the US photovoltaic (PV) project pipeline had been set to use Chinese modules, according to the latest NPD Solarbuzz *United States Deal Tracker*; however, with the recent anti-subsidy and anti-dumping rulings proposed by the US Department of Commerce, companies may have to find other suppliers or potentially pay higher prices for those modules. Approximately half of the US PV project pipeline is composed of ground-mount systems—many of them large-scale. While traditionally these have been attractive due to economy of scale savings, many could face challenges, in the form of cost increases stemming from the US trade investigation. “Large-scale ground-mount PV installations are particularly vulnerable to cost increases and potential disruption, as many have signed power purchase agreements at aggressive rates,” said Michael

Barker, senior analyst at NPD Solarbuzz. “Any increase in cost for the projects could mean renegotiation, delay, or even termination.” Despite the recent trade announcements, the total market demand and the size of the project pipeline continues to grow in the US, indicating sustained interest from project developers working in the market. The US solar PV project pipeline is now approaching 50 GW of commercial and utility projects. The US project pipeline is led in large part by California, but Nevada, North Carolina, Arizona, and other states now also have multi-gigawatt project plans. There is also increasing interest from states that have not previously seen significant solar activity, such as Utah and Minnesota, but have recently realized project announcements for several hundred megawatts (MW) of new solar PV installations.

Seattle’s Energy Code Bests National Standard

[Energy Manager Today, Aug. 7] Energy codes, the complex regulations that limit the energy consumed by new buildings, vary widely between states and even between cities. Not coincidentally, this distribution bears some resemblance to that familiar red state/blue state map from election season. More conservative regions of the country sometimes provide little or no regulation of building energy use, while more progressive areas shepherd their building construction towards increasing levels of efficiency. Cities and states in the vanguard continue to develop and implement the most promising concepts, and these concepts then make their way into subsequent national standards. The national benchmark for energy codes is known as ASHRAE 90.1, a 270-page guide specifying building energy requirements in mind-numbing detail. The Department of Energy requires each state to enforce an energy code at least as effective as the current ASHRAE standard, although only a dozen have managed to do so thus far. A recent study of the 2012 Seattle Energy Code concludes that new commercial buildings in Seattle will not only meet the 2010 edition of ASHRAE 90.1, but will exceed that standard by a substantial margin. The report by Mike D Kennedy, Inc., *Comparison of the 2012 Seattle Energy Code with ASHRAE 90.1-2010*, finds the Seattle code to be 11.3 percent more efficient in aggregate than the ASHRAE standard.

WESTERN POWER

California Drought Transforms Global Food Market

[Bloomberg, Aug. 11] For more than 70 years, Fred Starrh’s family was among the most prominent cotton growers in California’s San Joaquin Valley. Then shifting global markets and rising water prices told him that wouldn’t work anymore. So he replaced most of the cotton plants on his farm near Shafter, 120 miles northwest of Los Angeles, and planted almonds, which make more money per acre and are increasingly popular with consumers in Asia. “You can’t pay $1,000 an acre-foot to grow cotton,” said Starrh, 85, crouching to inspect a drip irrigator gently gurgling under an almond tree. Such crop switching is one sign of a sweeping transformation going on in California -- the nation’s biggest agricultural state by value -- driven by a three-year drought that climate scientists say is a glimpse of a drier future. The result will affect everything from the price of milk in China to the source of cherries eaten by Americans. It has already inflamed competition for water between farmers and homeowners. Growers have adapted to the record-low rainfall by installing high-technology irrigation systems, watering with treated municipal wastewater and even recycling waste from the processing of pomegranates to feed dairy cows. Some are taking land out of production altogether, bulldozing withered orange trees and leaving hundreds of thousands of acres unplanted. “There will be some definite changes, probably structural changes, to the entire industry” as drought persists, said American Farm Bureau Federation President Bob Stallman. “Farmers have made changes. They’ve shifted. This is what farmers do.”

California Takes Record Volumes of Oil by Rail from Utah

[Bloomberg, Aug. 6] California, home to two-thirds of refining capacity in the western U.S., brought in a record volume of waxy oil by rail from Utah in June as crude imports from Canada and North Dakota slid. The state, the biggest gasoline market in the U.S., received 2,737 barrels a day of oil by rail from Utah in June, almost twice the volume of the previous month and up from nothing a year ago, data on the state Energy Commission’s website showed yesterday. Canadian oil-by-rail imports dropped 25 percent to 6,669 barrels a day. North Dakota shipments shrank by 34 percent to 4,035. California’s oil-by-rail deliveries are at a seasonal record as refiners in the western U.S., lacking direct pipeline access, use trains to reach surging crude production from shale formations in the center of the country and in Canada. Utah is shipping record volumes of oil by rail as companies use a combination of hydraulic fracturing and horizontal drilling to draw the most waxy oil out of its Uinta Basin since 1987. Ultra Petroleum Inc., a Houston-based independent oil and gas driller that bought $650 million worth of oil-producing assets in the Uinta Basin in northeast Utah last year, said July 31 that “rail capacity is the best option to place our barrels.” “By 2016, we expect to market approximately 45 percent of our crude oil volumes via rail,” Garland Shaw, the company’s chief financial officer, said in a conference call with analysts. The company has

agreements for at least 2,000 barrels a day of rail capacity that can expand to 7,500, he said.

Governor Proposes $6 Billion Water Bond for California
[Bloomberg, Aug. 6] California Governor Jerry Brown called on lawmakers to put a $6 billion "no-frills" bond measure on the November ballot, about half the size of a pending proposal, to secure the water supply amid a record drought. Brown's plan would take the place of an $11.1 billion bond offering, scheduled for a vote in November, approved in 2009 by lawmakers and then-Governor Arnold Schwarzenegger. Brown said California can't afford the $750 million a year it would add to the state's $8 billion in annual bond debt service. "I'm proposing a no-frills, no-pork water bond that invests in the most critical projects without breaking the bank," Brown, 76, a Democrat who's running for re-election, said yesterday in a message on his campaign website. More than 80 percent of California is experiencing extreme drought after three years of record low rainfall. Reservoirs are 45 percent below normal and declining. Brown declared a state of emergency in January and called for a voluntary, 20 percent reduction of water use.
California lawmakers have been trying for months to agree on a smaller bond measure to upgrade aqueducts, water storage and pipelines that link the Sacramento-San Joaquin River Delta to population centers in Southern California and supply the $44.7 billion-a-year agriculture industry.

Green Light for 3GW Wyoming Project
[Wind Power Monthly, Aug. 11] UNITED STATES - Wyoming state authorities have approved the development of the 3GW Chokecherry and Sierra Madre wind project. The development will be made up of 1,000 turbines, each with a 3MW capacity, giving it a total capacity far outstripping the world's current largest wind project, the 1GW Alta Wind Energy Centre in California. Power Company of Wyoming, which is developing the project, has now been given consent by Wyoming Industrial Siting Council to start construction of the $5 billion project. The project is to be built in phases, with the work on the first 1.5GW stage set to begin before the end of the year. The second phase is due to start construction in 2019.

Renewable Energy Recipe: One Part Earth, Two Parts Sun
[Reno Gazette-Journal, Aug. 6] Energy from the Earth's core will combine with two sun-flavored sources this month to help power Nevada. The Enel Green Power geothermal-solar hybrid plant at Stillwater is the first of its kind because it's adding thermodynamic solar power to its current mix of geothermal and photovoltaic solar. Project managers hope the plant, which will turn on its thermodynamic units later this month, will blaze a trail for local power grids. Karl Gawell, executive director of the Geothermal Energy Association, said the effort provides a chance for research. "How do we get the right mix of renewables? It's not all this or all that — it's a combination," Gawell said during a Monday tour of the plant. The tour was part of a summit in Reno this week hosted by Gawell's group. "It's low-profile, low-impact," Gawell said of geothermal power. "It's as low as you can get." The project northeast of Fallon supplies power to NV Energy. The solar addition at Stillwater is the latest move toward boosting and building on the power of geothermal energy and melding different renewables at one location. Nevada has by far the highest number of geothermal projects in development, according to the geothermal association's 2014 annual report. California is a distant second.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

INCENTIVES

Arizona has lowered taxes, streamlined regulations, and established a suite of incentives to support corporate growth and expansion. The Arizona Competitiveness Package, groundbreaking legislation adopted in 2011, makes it easier for existing Arizona companies to prosper and establishes Arizona as one of the most desirable places for expanding companies to do business. Give your company a competitive edge by utilizing Arizona's incentives.

- Job Training
- Quality Jobs
- Qualified Facility
- Computer Data Center Program
- Research & Development
- Foreign Trade Zone
- Military Reuse Zone

- Angel Investment
- Renewable Energy Tax Incentive
- Healthy Forest
- Sales Tax Exemption for Machinery and Equipment
- Lease Excise
- Additional Depreciation
- Work Opportunity
- Commercial/Industrial Solar
- SBIR/STTR
- Private Activity Bonds
- QECB's

(ACA) PROGRAMS

DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (DSIRE)

- Arizona Incentives/Policies
- Federal Incentives/Policies
- Solar Policy News
  DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

The following solicitations are now available:
(Click on title to view solicitation)

- Tribal Energy and Mineral Development Grants - Response due Aug. 25, 2014
- Hydrogen Fuel Cell Technologies Incubator - Response due Sep. 3, 2014
- Manufacturing Machines and Equipment - Response due Sep. 15, 2014
- Secure and Trustworthy Cyberspace - Response due Sep. 19, 2014
- Nanomanufacturing – Current Closing Date for Applications: Sep. 15, 2014 Full Proposal Window: Sep.1, 2014 – Sep. 15, 2014 Full Proposal Window: Feb. 01, 2015 – Feb. 17, 2015
- Civil Infrastructure Systems – Sep. 15, 2014 Submission Window Date(s) (due by 5 p.m. proposer's local time): Full Proposal Window: Sep. 01, 2014 – Sep. 15, 2014 Full Proposal Window: Feb. 01, 2015 – Feb. 17, 2015
- Deployment of Clean Energy & Energy Efficiency on Indian Lands #DE-FOA-0001021 – Full Application Submission Deadline: October 2, 2014. A **Webinar** will be held on **August 14**. The intent of this webinar is to provide information for potential applicants to the Energy Departments Funding Opportunity for the Deployment of Clean Energy and Energy Efficiency on Indian Lands (DE-FOA-0001021). - Space is limited - Reserve your Webinar seat now at: https://www1.gotomeeting.com/register/140937312
- Energy for Sustainability – Current Closing Date for Applications: Nov. 5, 2014 Full Proposal Window: Oct. 01, 2014 – Nov. 5, 2014
- Energy, Power, and Adaptive Systems - Close Date: Nov. 3, 2014
- National Robotics Initiative - Response due Nov. 14, 2014
- NSF/DOE Partnership on Advanced Frontiers in Renewable Hydrogen Fuel Production Via Solar Water Splitting Technologies 2014-2016 - Close Date: Dec. 11, 2014
- Energy for Sustainability – Current Closing Date for Applications: Nov. 5, 2014
- Advanced Fossil Energy Projects - Solicitation Number: DE-SOL-0006303 Expiration Date: Nov. 30, 2016

- Repowering Assistance Program - Ongoing
- Rural Business Enterprise Grants - Ongoing
- Rural Business Opportunity Grants - Ongoing
- Sustainable Agriculture Research and Education Grants - Ongoing
- Renewable Energy RFP's - Solicitations for Renewable Energy Generation, Renewable Energy Certificates, and Green Power – Various Deadlines
- U.S. Dept. of Agriculture - Rural Development Grant Assistance
- Green Refinance Plus - Ongoing

ENERGY-RELATED EVENTS

2014

- Energy 101
  August 13 Litchfield Park, AZ

- Innovation Arizona Summit
  August 14 Scottsdale, AZ

- 2014 Environmental & Sustainability Summit
  August 14, Prescott, AZ

- SBIR: Ask the Experts
  August 20 Tucson, AZ

- SBIR: Ask the Experts
  August 21 Phoenix, AZ

- 2014 ACEEE Summer Study on Energy Efficiency in Buildings
  August 17-22, 2014 Pacific Grove, CA

- 2014 Farm Progress Show
  August 26-28, 2014 Boone, IA

- Symposium on Thermal & Catalytic Sciences for Biofuels & Biobased Products
  September 2-5, 2014 Denver, CO

- EPI's 4th Annual Energy Policy Research Conference
  September 4-5, 2014 San Francisco, CA

- Economic Outlook 2015
  September 5, 2014 Phoenix, Arizona

- Arizona Technology Summit
  Sept. 17 Phoenix, AZ

- HTUF 2014 National Meeting - The Forum for Action in High-Efficiency Commercial Vehicles
  September 22-24, 2014 Argonne, National Lab - Argonne, IL

- Geothermal Energy Expo
  September 28-October 1, 2014 Portland, OR

- AWEA Offshore Windpower Conference & Exhibition 2014
  October 7-8, 2014 Atlantic City, NJ

- Solar Power International
  October 20-23, 2014 Las Vegas, NV

- GreenBuild International Conference & Expo
  October 22-24, 2014 New Orleans, LA

- World Bio Markets USA
  October 27-29, 2014 San Diego, CA
- VERGE SF 2014
  October 27-30, 2014 San Francisco, CA
- Governor's Celebration of Innovation
  November 13, 2014 Phoenix, AZ
- Renewable Energy Markets Conference
  December 2-4, 2014 Sacramento, CA
- Solar Power Generation USA 2015
  February 4-5, 2015 San Diego, CA
- ASU Sustainability Series Events
- Green Building Lecture Series
  Granite Reef Senior Center Scottsdale, AZ
- ASU Sustainability Series Events
- Green Building Lecture Series Scottsdale, AZ
- ENERGY STAR Webinars
- U.S. Dept. of Energy Tribal Renewable Energy Webinar Series for 2014